

2001

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JARVI, SUSAN I.; MILLER, MARCIA M.; GOTOL, RONALD M.; GEE, GEORGE F.; and BRILES, W. ELWOOD, "EVALUATION OF THE MAJOR HISTOCOMPATIBILITY COMPLEX (Mhc) IN CRANES: APPLICATIONS TO CONSERVATION EFFORTS" (2001). *North American Crane Workshop Proceedings*. 84.  
<http://digitalcommons.unl.edu/nacwgproc/84>

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## EVALUATION OF THE MAJOR HISTOCOMPATIBILITY COMPLEX (Mhc) IN CRANES: APPLICATIONS TO CONSERVATION EFFORTS

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**Abstract:** Although there have been heated discussions concerning the relative importance of using Mhc diversity as a basis for selecting breeders in conservation projects, most parties agree that the genetic variability residual in an endangered species should be maintained through genetic management, if at all possible. Substantial evidence exists (particularly in birds) documenting the influences of specific Mhc haplotypes on disease outcome and also that those individuals which are heterozygous for Mhc alleles appear to have an advantage for survival over those that are homozygous. Thus, conservation of genetic variability of the Mhc is likely important for the preservation of fitness, especially in small breeding populations. More than half of the world's crane species are listed as endangered. Members of all 15 known species are represented among breeding animals for captive propagation at the International Crane Foundation (Wisconsin) and the USGS Patuxent Wildlife Research Center (Maryland). Collaborative multi-organization efforts and the availability of extensive pedigree records have allowed the study of Mhc variability in several species of cranes. We have found, for example, that Mhc diversity in the captive Florida sandhill crane (*Grus canadensis pratensis*) population appears high, whereas in the captive whooping crane (*Grus americana*), which has undergone a severe "genetic bottleneck," both the number of alleles and the levels of heterozygosity appear to be substantially reduced.

PROCEEDINGS NORTH AMERICAN CRANE WORKSHOP 8:223

**Key words:** cranes, eugenics, genetics, haplotype, major histocompatibility complex, Mhc.

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